

Searching new physics via features of the stochastic gravitational wave background

Sunday, 5 May 2024 10:00 (20 minutes)

Characteristic patterns can emerge in the spectral shape of the stochastic gravitational wave (GW) background through various mechanisms. For instance, the GW background generated via second-order scalar perturbations, often discussed in the context of primordial black hole formation, exhibits a distinct spectral shape. Additionally, scalar-induced GWs excited during inflation and specific types of quantum gravity theories can produce a stochastic GW background with logarithmic oscillations. These specific shapes in the GW spectrum can be identified through template-based analysis methods. In this talk, I will present an example of a template-based search and constraints on scalar-induced GWs using the most recent LVK O3 data. Subsequently, I will discuss future prospects for third-generation GW experiments such as the Einstein Telescope, focusing on the example of the log-oscillation feature.

Primary author: KUROYANAGI, Sachiko (IFT UAM-CSIC)

Presenter: KUROYANAGI, Sachiko (IFT UAM-CSIC)

Session Classification: Talks